

What is claimed is:

1. An uninterruptible power supply comprising:

a power supply unit for generating DC power at a
5 predetermined voltage from AC power supplied from the
outside to supply the DC power to an electronic device;
and

10 a rechargeable battery unit including rechargeable
battery cells for storing the power supplied thereto from
said power supply unit for supplying said electronic
device with the power stored in said rechargeable battery
upon service interruption of said AC power,

wherein said rechargeable battery unit comprises:

15 a battery state monitoring unit for monitoring a
state of said rechargeable battery cells; and
communicating means for notifying said electronic
device of information indicative of the state of said
rechargeable battery detected by said battery state
monitoring unit.

20 2. The uninterruptible power supply according to claim 1.

wherein:

said rechargeable battery cells comprise nickel-metal
hydride rechargeable batteries.

3. The uninterruptible power supply according to claim 1,
25 wherein:

said battery state monitoring unit comprises
functions of detecting a battery voltage, a charge current
and/or a battery temperature of said rechargeable battery
cells, determining a fully charged state of said
30 rechargeable battery cells based on the information
detected thereby, and calculating a charge capacity and/or
a lifetime of said rechargeable battery cells.

4. The uninterruptible power supply according to claim 1,

wherein:

said communication means notifies said electronic device of at least one of a battery voltage, a battery temperature, a charge current, a discharge current, a
5 battery capacity, a lifetime, the number of discharges, and a replacement time of said rechargeable battery cells, as said information indicative of the state of said rechargeable battery cells.

5. The uninterruptible power supply according to claim 1,
10 wherein:

said rechargeable battery unit comprises a charge controller for controlling charging of said rechargeable battery cells in accordance with a battery voltage and/or a battery temperature of said rechargeable battery cells
15 detected by said battery state monitoring unit.

6. The uninterruptible power supply according to claim 1, wherein said power supply unit comprises:

a first invertor for converting the AC power supplied from the outside to AC power for driving a primary winding
20 of an insulating transformer;

a DC voltage stabilizer circuit for retrieving power from a secondary winding of said insulating transformer to generate a predetermined DC stabilized voltage;

a charging unit for retrieving power form a ternary
25 winding of said insulating transformer for use in charging said rechargeable battery cells; and

a second invertor for DC/AC converting the power supplied from said rechargeable battery cells for driving said ternary winding.

- 30 7. The uninterruptible power supply according to claim 1, wherein:

said rechargeable battery unit comprises a power supply monitoring unit for monitoring a state of said

power supply unit.

8. The uninterruptible power supply according to claim 1, wherein:

said rechargeable battery unit comprises performance determining means for determining backup performance of said rechargeable battery cells for said electronic device in accordance with a battery temperature of said rechargeable battery cells and the power consumption by said electronic device, and result outputting means for 10 outputting the result of determination.

9. The uninterruptible power supply according to claim 8, wherein:

said performance determining means calculates the electric energy used by said electronic device from the current value supplied to said electronic device from said power supply unit, and determines based on the power consumption energy and the battery temperature of said rechargeable battery cells whether or not said rechargeable battery cells are capable of supplying said 20 electronic device with backup power which can guarantee the operation of said electronic device.

10. The uninterruptible power supply according to claim 8, wherein:

said result output means comprises a display unit for displaying the result of determination as to the backup performance of said rechargeable battery cells for said electronic device, or notifying means for notifying said electronic device body of the result of determination.

11. The uninterruptible power supply according to claim 1, 30 wherein:

said power supply unit and/or said rechargeable battery unit comprise an alarm function for detecting an interruption of the AC power supplied from the outside to

inform the interrupted AC power.

12. The uninterruptible power supply according to claim 11, wherein:

5 said alarm function includes means for informing the interrupted AC power through a visual display and/or rumbling; and

resetting means for stopping said information.

13. The uninterruptible power supply according to claim 1, wherein said rechargeable battery unit comprises:

10 charge energy detecting means for detecting a charge energy of said rechargeable battery cells;

charging/discharging detecting means for detecting a charging/discharging state of said rechargeable battery cells;

15 failure detecting means for detecting a failure of said rechargeable battery cells and/or said power supply unit;

charge energy display means for displaying the charge energy of said rechargeable battery cells detected by said 20 charge energy detecting means in multiple stages;

charging/discharging display means for displaying the charging/discharging state of said rechargeable battery cells detected by said charging/discharging detecting means; and

25 alarming means for informing a failure detected by said failure detecting means.

14. The uninterruptible power supply according to claim 13, wherein:

30 said charge energy display means divides the charge energy of said rechargeable battery cells into n stages (n is a natural number equal to or larger than two), wherein said charge energy display means includes n display segments corresponding to the respective stages, said n

display segments being selectively driven to display the charge energy in multiple stages.

15. The uninterruptible power supply according to claim 13, wherein:

5 said charging/discharging display means comprises a function of displaying a charging state and a discharging state of said rechargeable battery cells in different display forms, and stops the display when said rechargeable battery cells reach a full charge.

10 16. The uninterruptible power supply according to claim 13, wherein:

 said alarming means informs a failure of said rechargeable battery cells and/or said power supply unit continuously until a reset instruction is given after 15 detecting the failure.

17. The uninterruptible power supply according to claim 13, wherein:

 said charge energy detecting means comprises a function of maintaining the same output as that generated 20 when the full charge is detected to drive said charge energy display means even if said charge energy detecting means detects a reduction in the charge energy due to a self discharge of said rechargeable battery cells after the full charge of said rechargeable battery cells has 25 been detected.

18. The uninterruptible power supply according to claim 1, further comprising:

 a cooling fan incorporated in a housing which integrally accommodates said electronic device, said power 30 supply unit, and said rechargeable battery unit for cooling down at least one of said electronic device, said power supply unit and said rechargeable battery unit,

 wherein said power supply unit or said rechargeable

battery unit comprises a fan lifetime detecting function for determining a lifetime or a state of said cooling fan for notification to said electronic device.

19. The uninterruptible power supply according to claim
5 18, wherein:

10 said rechargeable battery unit is integrally incorporated and packed in a case which is mounted in a drive bay previously prepared for a peripheral device in said housing, and mounted in said drive bay of said
housing for use therein.

20. The uninterruptible power supply according to claim 1,
wherein:

15 said rechargeable battery unit comprises a cooling fan for cooling down said rechargeable battery cells, and a fan controller for controlling the operation of said cooling fan.

21. The uninterruptible power supply according to claim
20, wherein:

20 said fan controller detects the temperature of said rechargeable battery to operate said cooling fan.

22. The uninterruptible power supply according to claim
20, wherein:

25 said fan controller comprises a function for forcedly disabling said cooling fan to operate when said rechargeable battery cells are being charged.